HMS Concept e.U.

GPS Safety Summary

CALCIUM STEARATE
Fatty Acids, C16-C18, calcium salts

GENERAL STATEMENT

GPS safety summaries are intended to provide a general overview of chemical substances in the context of the International Council of Chemicals Associations (ICCA) Global Product Strategy. The information presented in the safety summaries is general information on chemical properties and hazards involved to human and environment. It is not intended to replace the Safety Data Sheet, which is available from suppliers and should be referred to for full details of recommended safety procedures for each type of use.

SUBSTANCE OVERVIEW

Fatty acids, C16-18, calcium salts (Calcium distearate) belongs to a group of substances called Calcium soaps, which are widely used. The database for environmental effects, ecotoxicology and toxicology of Calcium distearate is extensive, allowing a robust evaluation of its hazard properties. Because of the lack of hazards and if the risk management recommendations as mentioned below are observed the substance can be handled safely.

CHEMICAL IDENTITY

Chemical Name:	Calcium Stearate
CAS number:	85251-71-4
EC number:	286-484-6
Molecular formula:	$(C_nH_{2n-1}O_2)2.Ca$ n=16,18
CAS formula:	
Synonyms:	Fatty Acids, C16-C18, calcium salts

USES AND APPLICATIONS

Calcium Stearate is used by the rubber and plastic industries as an effective elastomer processing aid, release agent, acid scavenger and lubricant. Calcium Stearate allows for complete product dispersion in elastomers. Calcium Stearate accelerates the gelation of rigid PVC compounds when used it is used during the processing of profiles, pipes, sidings and injection molded fittings. Calcium stearate is also used as a flow agent in powders including some foods (such as Smarties), a surface conditioner in hard candies such as Sprees, a waterproofing agent for fabrics, a lubricant in pencils and crayons. The concrete industry is using calcium stearate for efflorescence control of cementitious products used in the production of concrete masonry units i.e. paver and block, as well as waterproofing. In paper production, calcium stearate is used as a lubricant to provide good gloss, preventing dusting

and fold cracking in paper and paperboard making. In polyolefines, it can act as an acid scavenger or neutralizer at concentrations up to 1000ppm. It may be used in plastic colorant concentrates to improve pigment wetting. Applications in the personal care and pharmaceutical industry include tablet mold release, anti-tack agent, and gelling agent.
Calcium stearate is a component in some types of defoamers.

PHYSICAL / CHEMICAL PROPERTIES

The Calcium Stearate has the following characteristics and physical-chemical properties.

Property	Value
Form	Powder
Physical state	Solid
Colour	White
Odour	Odourless
Bulk Density	300-400 g/L
Melting/boiling point	160 – 180 °C
Flammability (optional)	Not flammable
Ignition Temperature	460 °C
Self-ignition temperature	Not Self-ignitable
Explosion limits (lower)	30 g/m^3
Maximum explosion pressure	9.1 bar
Flash point	No data available
Solubility in water	0.004 g/100 mL (15 °C)

HEALTH EFFECTS

Calcium distearate consists of natural fatty acids and calcium. Fatty acids are natural constituents of the human body and essential components of a balanced human nutrition. Fatty acids are generally judged as not representing a risk to human health. Calcium as essential trace element is also vital. Adverse health effects of calcium distearate are unlikely as both components are vital and effectively processed and regulated in the human body by natural physiological mechanism. The non-toxicity of calcium stearate is proved by extensive testing data which showed no adverse health effects.

Effect Assessment	Result
Acute Toxicity - Oral	Based on the available data it is not considered as acute toxic
Acute Toxicity - Dermal	Based on the available data it is not considered as acute toxic
Acute Toxicity – Inhalation	Based on the available data it is not considered as acute toxic
Serious damage/eye irritation	Based on the available data it is not considered as irritating.
Skin sensitization	Based on the available data not considered to cause allergic skin reaction
Toxicity after repeated exposure Oral / inhalation / dermal	Based on the available data not considered as chronically toxic when swallowed, inhaled or in contact with skin
Genotoxicity / Mutagenicity	Based on the available data not considered to cause

	genetic defects
Carcinogenicity	Based on the available data there is no concern that the substance might cause cancer
Toxicity for reproduction	Based on the available data there is no concern that the substance might impair fertility or the unborn child

No risk characterization was conducted as the substance is not classified as dangerous according to regulation (EC) No 1272/2008 or 67/548/EEC.

ENVIRONMENTAL EFFECTS

Environment Safety Assessment

Environmental safety is summarized below as a table.

Fate and behaviour	Result
Biodegradation	No data available
Bioaccumulation potential	No data available
PBT/vPvB conclusion	No data available

USE AND EXPOSURE

- **Consumer**: The general public may come in contact with Calcium Stearate series contained plastics.

- **Worker**: Exposure to Calcium stearate series will mainly take place during manufacture and use of Calcium stearate series. The substance is not classified as dangerous therefore specific RMM (Risk Management Measures) are not required. Guidance on safe use is communicated to downstream users by means of MSDS. Exposure to Calcium stearate series of personnel in manufacturing facilities is also considered very low because the process, storage and handling operations are enclosed. Workers who accidentally come in contact with the material should follow the safety measures recommended in MSDS.

RISK MANAGEMENT RECOMMENDATIONS

No exposure assessment was conducted as the substance is not classified as dangerous according to Regulation (EC) No: 1272/2008 or 67/548/EEC.

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Workers should always refer to the corresponding Safety Data Sheet before handling any substance and while using chemicals, general risk management measures should always be adhered to: when using concentrated chemicals always make sure that there is adequate ventilation. Always use appropriate chemical resistant gloves to protect your hands and skin and always wear eye protection such as chemical goggles. Do not eat, drink, or smoke where chemicals are handled, processed, or stored. Wash hands and skin following contact. If the substance gets into your eyes, rinse eyes thoroughly for at least 15 minutes with tap water and seek medical attention. For specific advice please consult the corresponding (Material) Safety Data Sheet of the substance.

All effluent releases that may include the substance must be directed to a (municipal) waste water treatment plant that removes the substance from the final releases to the receiving water.

SUBSTANCE REVIEW INFORMATION

Calcium Stearate series were not registered by the suppliers in the European Union in 2010 in accordance with the REACH regulation (EC) No 1907/2006. This product is exempt under section 9 of Annex V of the registration requirement.

REGULATORY INFORMATION / CLASSIFICATION AND LABELLING

Chemical substances are classified according to their physical, health, and environmental hazards. The hazards are communicated via specific labels and the Safety Data Sheets (SDS). With the GHS (Global Harmonized System) hazard communication has been standardized worldwide so that the intended audience (workers in production, emergency responders and consumers) can better understand the hazards of the chemicals in use. In the EU, the GHS principles have been laid down in the Regulation (EU) No. 1272/2008 (CLP). According to this regulation, Calcium stearate series is not classified and labeled for physical-chemical properties, for health effects.

CONTACT INFORMATION

For further information on this substance or product safety summaries in general:

Dr. Michael Schiller
HMS Concept e.U.
Am Huegel 1
9601 Arnoldstein
Austria

Web: http://www.hms-concept.net/
Email: michael.schiller@hms-concept.net
Mobile: +43 680 3066 114
Skype: dr.michaelschiller

ADDITIONAL INFORMATION

For more information on:

http://www.apag.org/new/index.htm

GLOSSARY

Acute toxicity: Harmful effects reflecting from a single or short term exposure to a substance
Biodegradable: Decomposition or breakdown of a substance under natural conditions

Bioaccumulation: Progressive accumulation in living organisms of chemical substance present in the environment
Carcinogenicity: Substance effects causing cancer
GHS: Global Harmonized System of chemicals classification
GPS Global Product Strategy
Hazard: Inherent substance property bearing a threat to health and environment
ICCA International Council of Chemical Associations
Mutagenicity: Substance effect that causes mutation on genes
MSDS Material Safety data sheet
PVC: Polyvinyl chloride
RMM Risk management measures

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DISCLAIMER

This product stewardship summary is intended to give general information about a (mixture of) specific material(s) as designated. It does not relate to the use of this product in combination with any other substances or any other process. It does not provide an in-depth discussion of health and safety information and is not intended to replace the information contained in a product's Material Safety Data Sheet (MSDS).

CONTACT INFORMATION

To our present knowledge, the information contained in this document is accurate as of its date of issue.

Readers are to use this information at their own discretion and risk. Some applications of this product may be regulated or restricted by applicable laws, regulations, standards or norms. It is the user's responsibility to determine suitability of any information or material for any contemplated use, to ensure compliance with relevant legislations and to verify relevant patents.

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